ROBERT KOCH (1843–1910)

Foreign Honorary Member in Class II, Section 4, 1901.

Robert Koch died May 27, 1910, in his sixty-seventh year. He was born in Klaustal; was one of thirteen children; eleven sons and two daughters.

He was at first intended to be a tradesman, but later was allowed to carry out his own desire, which was to study medicine.

In April, 1862, at the age of eighteen, he entered the University of Göttingen, and devoted himself to the study of mathematics, physics and botany. The physiologist, Meissner, and the pathologist, Henle had a special influence upon him during his stay here. In his second semester, he was made an assistant in the Pathological Museum, and shortly after took an academic prize.

In January, 1866, he took his Doctor's examination in Göttingen, and in March of the same year, after a short stay in Berlin, passed his state examination with great distinction at Hanover. He then spent a month as an assistant in the General Hospital of Hamburg, and from October, 1866 to July, 1868, combined general practice with that of physician to the Idiot's Hospital of Langenhagen near Hanover. He then practised a short time in Neimegk in Brandenburg, and from 1869 in Rakwitz in the province of Posen. From Rakwitz he went as a volunteer surgeon to the war against France; returning home — at the suggestion of one of his friends, he passed the examination for, and until 1872 served as, District Physician in Wollstein near Rakwitz.

In spite of all the interruptions that come to a busy practitioner, Koch had found time for microscopic studies during the preceding years, but it was first in Wollstein that, thanks to his improved financial condition, he secured better apparatus and instruments and could control his time better. He cut off half his consulting room for a laboratory, in which was installed a photomicrographic apparatus and a dark room. It was in this room that the young District Physician and busy practitioner made the discoveries that stamped him as a master of knowledge. The aims of his life stood now clear before his eyes. He threw a search-light on the darkness surrounding the infectious diseases: he placed the old, much disputed doctrine of

contagium vivum upon a solid foundation, and showed the methods of attack and control of pestilences.

The opportunity offered itself, at this time, to study anthrax, which formed the subject of his first recorded and published paper: ("Die Ätiologie der Milzbrandkrankheit, begründet auf die Entwickelungsgeschichte des Bacillus anthracis," Cohn's *Beiträge z. Biologie der Pflanzen*, II, 1876, 1 Pl.) This was the first of the series of papers upon this disease: studies which involved him in the bitter controversy with Pasteur. Before this was finished, came his special contributions on methods ("Verfahrung zur Untersuchung, zum Konservieren und Photographieren der Bakterien," Cohn's *Beiträge*, II, 1877, and "Zur Untersuchung von pathogenen organismen," *Mitt. a. d. Kais. Gesundheitsamte*, I, Berlin, 1881). Then came his work on suppurations and septicemias ("Untersuchung über die Ätiologie der Wundinfektionskrankheiten," Leipzig, 1878) on disinfection ("Über Desinfektion," *Mitt. a. d. Kais. Gesund.*, I, Berlin, 1881), and his results on tuberculosis, first indicated in 1882 ("Die Ätiologie der Tuberkulose. Nach einen in der Physiologische Geselleschaft zu Berlin am 24 Marz, 1882, gehalten Vortrage, *Berlin, Klin. Woch.* 1882," and "Die Ätiologie der Tuberkulose," *Mitt. a. d. Kais. Gesund.*, II, Berlin, 1884.) This subject took much of his attention for many years, and as his demonstration of the etiological factor served to give his reputation the solid world-wide acceptance that it received, so the forced circumstances surrounding the announcement of the remedial substance "tuberculin," and the disappointment of the extreme hopes aroused, served to embitter much of his later life. The circumstances of this occurrence are tragic, as those familiar with the facts well know. In 1882, however, his work on tuberculosis was interrupted by the expedition to Egypt and India for the study of cholera. The results appeared in 1887 in a separate volume (*Arb. a. d. Kais. Gesundheitsamt*, 1887, III), and like all his previous communications bear the marks of painstaking research and great accuracy.

His work on "infectious-wound-diseases" especially aroused Cohn's interest, so that through his influence, Koch became District Physician in Breslau in 1879. But his reputation was so rapidly growing that on June 28, 1880, he was brought to the Kaiserlichen Gesundsheitsamt in Berlin, and was at last free to work and carry out his great aims uninterrupted. It was here that he perfected his methods of staining, of photomicrography, and of solid culture media — all of them used before, but not widely known and accepted — methods that form the base of much of our knowledge of microscopic organisms, and the perfecting of which is in itself a claim to great distinction.

In 1885 a new promotion came — to the Chair of Professor of Hygiene in the Medical Faculty of the University of Berlin, and Director of the newly established Hygienic Institute.

In June, 1891, he was again transferred — to become the head of the new Institute for Infectious Diseases, with a hospital attached. In this place he became the leader and director of campaigns against epidemics in all parts of the Empire. He was made Surgeon-General of the Health Service, and Professor and Fellow of the Science Senate of the Kaiser Wilhelm's Academy.

As early as 1881, he had suggested that other micro-organisms than bacteria might be the cause of some infectious processes, and that blood-sucking insects might easily be the intermediate hosts. This he later demonstrated in his work in India, New Guinea and Africa upon many of the infections there prevalent.

Koch's characteristics were those necessary for the successful investigator — patience, a strong will and great persistence. The earlier part of his career was marked by such definite and clear-cut results in all his published papers that the scientific world was ready to accept the claims attributed to him as to the effects to be expected from the use of tuberculin. His personality was modest and unassuming, his diction, in conversation, simple, clear and convincing. These qualities seem to have been lessened in later life, for there then appears a tendency to general and dogmatic statement, and a greater inclination to controversial methods than had been seen before. Nevertheless, second only to Pasteur, his career stands as one of the first importance in the advance of our knowledge of the infectious diseases and the relief of human suffering.

H. C. Ernst.